sentence bridging pages 3 and 4 thereof, the Examiner has withdrawn the rejection involving Hille, et al.; note Item 1 on page 2 of this Office Action mailed April 28, 2011. Accordingly, any reliance by the Examiner on the teachings of Hille, et al., in the Office Action mailed April 28, 2011, is improper. Note, for example, In re Hoch, 166 USPQ 406, 407n. 3 (CCPA 1970).

Such reliance by the Examiner on the teachings of Hille, et al. on pages 3 and 4 of the Office Action mailed April 28, 2011, is particularly improper in light of the express withdrawal of the rejection utilizing the teachings of Hille, et al., in Item 1 on page 2 of the Office Action mailed April 28, 2011.

It is respectfully submitted that these references as applied by the Examiner would have neither taught nor would have suggested such a fuel system as in the present claims, including, inter alia, a coating layer formed on the surfaces of the insides of at least one of a fuel vessel body, a molded part body for a fuel and a tube body for a fuel or at least one of connected parts in these bodies, wherein the coating layer has a gasoline permeability coefficient of 0.2 $g \cdot mm/m^2 \cdot day$ or less at 23°C and a relative humidity of 60% RH, wherein a skeletal structure represented by Formula (1) in claim 1 is contained in the coating layer, and this skeletal structure represented by Formula (1) accounts for at least 20% by weight thereof, and wherein the coating layer is formed by curing an urethane resin composition comprising (i) an active hydrogen-containing compound (A) which includes alkyleneoxide adducts of xylylenediamine produced by reacting the alkyleneoxide and xylylenediamine in a molar ratio of the former to the latter of 2-16, and (ii) an organic polyisocyanate compound (B), which comprises a reaction product of (a) and (b), or (a)-(c), as in claim 1. See claim 1.

As discussed in more detail infra, Woodward, et al. is directed to a polyurethane coating for a moisture vapor barrier, Example XX in column 20 of this patent describing solvent resistance of the dried coatings being determined by placing coated paper in contact with the solvents such as water, chlorinated hydrocarbon solvent and xylene for two weeks. Emphasizing that Woodward, et al. is concerned with providing a moisture vapor barrier, one of ordinary skill in the art concerned with in Hata, et al., having a fuel tank with barrier properties for gasoline, would not have looked to the teachings of Woodward, et al. In any event, Woodward, et al., even together with the teachings of the other applied references, would have neither disclosed nor would have suggested use of materials of Woodward, et al., as a barrier for gasoline, and Woodward, et al. would not have disclosed or suggested xylylenediamine and alkyleneoxide adducts of xylylenediamine as in the present claims.

As set forth in the sole full paragraph on page 15 of Applicants' specification, by utilizing an active hydrogen-containing compound (A) as in claim 1, which includes alkyleneoxide adducts of xylylenediamine produced by reacting the alkyleneoxide and xylylenediamine in the molar ratio of 2-16, improved gasoline-barrier and adhesion properties are achieved.

Moreover, and as will be shown further in the following, it is respectfully submitted that these applied references do not disclose, nor would have suggested, the fuel system including, inter alia, the coating layer having the skeletal structure represented by Formula (1), formed using the specific active hydrogen-containing compound (A) and organic polyisocyanate compound (B) as in claim 1, and with the amount of the skeletal structure represented by the Formula (1) as in claim 1, and advantages due thereto, or the gasoline permeability coefficient of the coating layer as set forth in claim 1, and advantages thereof.

In addition, as seen in the Declaration Under 37 CFR 1.132 submitted February 28, 2008, when the skeletal structure represented by Formula (1) in claim 1 is contained in the coating layer in an amount of at least 20% by weight, unexpectedly better results in reduced gasoline permeability coefficient are achieved, further supporting unobviousness of the presently claimed invention in claim 1, including amount of skeletal structure represented by this Formula (1).

Furthermore, attention is respectfully directed to the Declaration under 37 CFR 1.132 dated May 25, 2009, and submitted with the Amendment filed June 8, 2009. In this Declaration submitted June 8, 2009, experimental data of gasoline permeability coefficients using polyesterpolyol (F18-62) as an active hydrogen-containing compound (A), and trimethylol propane adducts of isophorone diisocyanate (D-140N) or trimethylol propane adducts of hexamethylenediisocyanate as the organic polyisocyanate compound (B), are provided. Coating films were prepared according to procedures as in the Examples of the present invention, and results in connection with Examples A and B are set forth on page 2 of this Declaration. According to this Declaration submitted June 8, 2009, the gasoline permeability coefficients obtained in connection with coating films in Examples A and B were in the range of 50-80 (g•mm/m^2•day). From this data, it can be seen that the gasoline permeability coefficients of coating layers formed by curing urethane resin compositions not using xylylenediamine and/or xylylenediisocyanate, and then not containing a skeletal structure represented by Formula (1), in an amount as in the present claims, are very large, and such coating films have a low gasoline barrier property.

It is respectfully submitted that the evidence of record in the above-identified application, including Examples in Applicants' specification and the evidence in the two (2) submitted Declarations, shows unexpectedly better results achieved by the presently claimed subject matter. Moreover, as the two Declarations have previously been entered of record and fully considered, it is respectfully submitted that these two Declarations must be fully considered herein. It is respectfully submitted that the unexpectedly better results established by the evidence of record provide a basis for a conclusion of unobviousness of the presently claimed subject matter.

Moreover, the coating layer is formed by curing a urethane resin composition comprising (i) the specified active hydrogen-containing compound (A), which includes a reaction product of reactants including xylylenediamine, and (ii) the specified organic polyisocyanate compound (B). As described in Applicants' specification at page 13, lines 16-21 (with respect to the alkyleneoxide adduct of aroaliphatic polyamine, such as xylylenediamine), the coating layer formed by curing an urethane resin composition including, in addition to the organic polyisocyanate compound (B), the specific active hydrogen-containing compound (A) as in present claim 1 including the specific diamine, achieves a higher gasoline barrier property even as compared with using other active hydrogen-containing compounds (A).

Furthermore, it is respectfully submitted that these applied references would have neither disclosed nor would have suggested such a fuel system as in the present claims, having features as discussed previously in connection with claim 1, and, moreover, wherein such skeletal structure represented by Formula (1), in the coating layer, accounts for at least 48% by weight thereof (see claim 22); and/or wherein the urethane resin composition has a ratio of isocyanate groups in the organic polyisocyanate compound (B) to the sum of OH and amino groups in the active hydrogen-containing compound (A) as in claim 20.

Moreover, it is respectfully submitted that these applied references would have neither taught nor would have suggested such fuel system as in the present claims, having features as discussed above in connection with claim 1, and, moreover, wherein the thermoplastic resin (of the body of the recited structure) is at least one selected from those set forth in claims 3-6; and/or wherein the active hydrogen-containing compound (A) utilized in forming the coating layer has at least 3 active hydrogen atoms (see claim 19).

In addition, it is respectfully submitted that the teachings of the applied prior art would have neither disclosed nor would have suggested such fuel system as in the present claims, having features as discussed previously in connection with claim 1, and having additional features as in the remaining dependent claims, including (but not limited to) wherein the coating layer is formed on any surface of the inside and outside of the fuel vessel body at an area rate of 50-100% (see claim 16), more specifically, 75 to 100% (see claim 23) or 80 to 100% (see claim 24); and/or wherein the fuel system includes the fuel vessel with the coating layer formed on any surface of the inside of the molded parts for a fuel (see claim 17), or formed on at least one of connected parts of the fuel vessel and the molded parts for a fuel (see claim 18); and/or wherein the coating layer has a thickness of 1-200 μm (see claim 21); and/or wherein the coating layer is formed only on the surfaces of the inner surfaces of the specified parts (see claim 25).

The present invention relates to a fuel system comprising various parts, excellent in, inter alia, permeation-preventing performance against an automobile fuel (that is, having an excellent gasoline barrier property), and excellent in heat resistance and impact resistance.

Recently, attention has turned to forming fuel vessels of a thermoplastic resin, in view of a reduction in weight, rust avoidance property, ease in mold processing, and recycling ability, in comparison with metal-made fuel vessels. However, there has been a problem that previous single-layer fuel vessels, made, for example, of polyethylene, have a relatively high gasoline permeability, so that gasoline is permeated and volatilized to the outside environment, through the fuel vessel body.

It has been proposed to provide a multilayer tank comprising, for example, polyethylene and an ethylene-vinyl alcohol copolymer; however, in view of recent environmental regulations, the gasoline barrier property thereof is not altogether satisfactory. Furthermore, in making such multilayer structures, problems arise in connection with forming a layer of a fuel-barrier material on, e.g., polyethylene, as described, for example, on pages 2-4 of Applicants' specification.

Against this background, and as a result of intensive investigations by the present inventors, Applicants provide a fuel system including a coating layer on at least one of a thermoplastic resin and a synthetic rubber, excellent in a gasoline barrier property, heat fusing property, and mechanical strength, wherein the coating layer can be formed evenly (so as to provide excellent gas-barrier properties, even in light of present environmental laws), which fuel system has good adhesion between the coating layer and fuel vessel body, and wherein the fuel system has good flexibility and bending resistance. Applicants have found that by utilizing a coating layer as in the present claims, wherein a skeletal structure represented by Formula (1) is contained in the coating layer formed by curing a specified urethane resin composition, and this skeletal structure represented by Formula (1) accounts for at least 20% by weight thereof, and wherein the coating layer has a gasoline permeability coefficient of 0.2g•mm/m^2•day or less at 23°C and a relative humidity of 60%RH, the coating layer having been formed by curing an urethane resin composition comprising the specified active hydrogen-containing compound (A) (which includes alkyleneoxide adducts of xylylenediamine produced by reacting alkyleneoxide and xylylenediamine with a molar ratio of the former to latter in a range of 2-16) and the specified organic polyisocyanate compound (B), the coating layer being provided on inside surfaces of the recited parts, objectives according to the present invention are achieved. That is, as described in the paragraph bridging pages 22 and 23 of Applicants' specification, when the cured resin contains the backbone structure represented by Formula (1), and contains such backbone structure represented by Formula (1) in an amount of 20% by weight or higher, a high gasoline-barrier property can be exhibited, a high capability of preventing leakage of gasoline through the coating layer is achieved, and a good adhesion property between the fuel vessel body and molding parts or tube is achieved. Note also the second full paragraph on page 29 of Applicants' specification.

It is emphasized that by using the specified active hydrogen-containing compound (A) as recited in the present claims, which includes alkyleneoxide adducts of xylylenediamine produced by reacting alkyleneoxide and xylylenediamine with a molar ratio of the former to the latter in a range of 2-16, a still higher gasoline barrier property, and even greater adhesion properties, are achieved, as described in the sole full paragraph on page 15 of Applicants' specification.

As to advantages achieved by the present invention, note the Examples in Applicants' original disclosure, starting from page 33 thereof; and note especially Tables 1 and 2 respectively on pages 35 and 37 of Applicants' specification.

It is respectfully submitted that the Declaration of T. Koyama, submitted with the Amendment filed February 28, 2008, further supports the conclusion of unobviousness of the presently claimed invention, particularly showing unexpectedly better results achieved where the coating layer is made from a urethane resin composition comprising an active hydrogen-containing compound (A) and an organic polyisocyanate compound (B), with the skeletal structure represented by Formula (1) accounting for 20% by weight or more of the coating layer. In particular, attention is respectfully directed to the "Procedures of Experiment" on pages 2 and 3 of this Declaration of T. Koyama. Note that Cases A-C (Examples 1-3, respectively) fall within the present invention, while Cases D-K (Reference Examples 1-8, respectively) fall outside the scope of the present invention. Note that Reference Examples 1-4 investigated coating layers differing from materials of the coating layer according to the present invention in the polyisocyanate compound, with corresponding reduced amount of content of the skeletal structure of Formula (1) as compared to the amount recited in present claim 1; and Reference Examples 5-8 contained no content of the skeletal structure of this Formula (1). Note that a coating layer of material as in the present claims had greatly reduced gasoline permeability coefficient, as compared to both (a) coating layers of materials having some content of the skeletal structure of Formula (1) (see Reference Examples 1-4), but less than the amount recited in the present claims; and (b) coating layers of materials having no content of the skeletal structure of this Formula (1) (see Reference Examples 5-8).

Thus, note the difference in gasoline permeability coefficient according to the present invention, having content of skeletal structure of Formula (1) as in the present claims, in Examples 1-3 of this Declaration of T. Koyama, as compared with gasoline permeability coefficients of layers in Reference Examples 1-4, having reduced content of skeletal structure of Formula (1), less than that in the present claims, and Reference Examples 5-8, having no content of skeletal structure of Formula (1). As stated under the heading "Consideration" on pages 3 and 4 of this Declaration, gasoline permeability coefficients were increased in Cases D-G (Reference Examples 1-4) which contain a small amount (less than 20% by weight) of the skeletal structure represented by Formula (1), and a large gasoline permeability coefficient occurred in Cases H-K (Reference Examples 5-8) which contain no skeletal structure represented by Formula (1), even though the coating layer comprised of the urethane resin composition included an active hydrogen-containing compound (A) and an organic polyisocyanate compound (B).

In addition, attention is again respectfully directed to Reference Examples 1-4 on page 3 of the aforementioned Declaration. These Reference Examples show that even where the content of the skeletal structure of Formula (1), in percent weight, increases from 6.7 to 8.2%, there is substantially no change in gasoline permeability coefficient. Especially in view of these Reference Examples 1-4, the unexpectedly better results achieved by the presently claimed invention, wherein the content of the skeletal structure of Formula (1) is at least 20% by weight, can be appreciated. That is, as there was substantially no change in gasoline permeability coefficient in increase of the skeletal structure of Formula (1) from 6.7 to 8.2%, it is unexpected as to the better results achieved at at least 20% by weight.

Attention is again directed to the Declaration submitted with the Amendment filed June 8, 2009, and previously discussed herein. This Declaration submitted June 8, 2009, especially noting the experimental results at the bottom of page 2 thereof, and noting the Conclusions therefrom on page 3 thereof, further support a conclusion of patentability of the presently claimed subject matter, including the coating layer formed by curing the urethane resin composition comprising an active hydrogen-containing compound (A) and an organic polyisocyanate compound (B), the coating layer having a gasoline permeability coefficient of 0.2 g•mm/m^2•day or less at 23°C in a relative humidity of 60% RH, wherein a skeletal structure represented by Formula (1), contained in the coating layer formed by curing the urethane resin composition forming the coating layer, accounts for 20% by weight or more, wherein the active hydrogen-containing compound (A) comprises alkyleneoxide adducts of xylylenediamine produced by reacting alkyleneoxide and xylylenediamine with a molar ratio [(alkyleneoxide)/(xylylenediamine)] in a range of 2-16, and wherein the organic polyisocyanate compound is a reaction product of (a) and (b), or reaction product of (a), (b) and (c), as in claim 1, and has two or more NCO end groups.

The Office Action mailed April 28, 2011, does not address the evidence properly and timely of record in the above-identified application. Clearly, failure to comment on such evidence timely of record is improper. See Manual of Patent Examining Procedure (MPEP) 716.01(a). Upon full consideration of the evidence of record, it is respectfully submitted that Applicants have clearly established unexpectedly better results achieved according to the present invention, and, correspondingly, unobviousness thereof.

Hata, et al. discloses an automobile fuel tank of multilayer construction, which includes (a) inner and outer layers of high-density polyethylene; (b) intermediate layers of adhesive resin; and (c) a core layer of ethylene-vinyl alcohol copolymer, wherein the total thickness of layers positioned inside the layer (c) is smaller than the total thickness of the layers positioned outside of the layer (c). See column 1, lines 8-11, and from column 1, line 66, through column 2, line 7. Note also column 2, lines 19-26, 49 and 50; and column 3, lines 4, 5, 16-22, 27-30 and 36-43. See also column 5, lines 9-12 and 22-25.

It is respectfully submitted that Hata, et al. discloses a fuel tank structure including, inter alia, a layer of ethylene-vinyl alcohol copolymer, and it is deficient in connection with presently claimed structure, with respect to, inter alia, a coating layer as in the present claims, and advantages thereof, or the gasoline permeability coefficient and advantages thereof. Moreover, Hata, et al. would have neither taught nor would have suggested structure of the present claims including, among other features, wherein the coating layer includes the skeletal structure represented by Formula (1) in claim 1, especially amount thereof, and is formed using the specific active hydrogen-containing compound (A) which includes the alkyleneoxide adducts xylylenediamine produced by the reaction as set forth in claim 1 (including the molar ratio of alkyleneoxide to xylylenediamine), and specific organic polyisocyanate compound (B) as set forth in claim 1, or the gasoline permeability coefficient of the coating layer, or wherein the coating layer is provided on the inner surfaces, among other features discussed in the foregoing, and advantages of these features.

It is respectfully submitted that the additional teachings of the secondary references applied by the Examiner would not have rectified the deficiencies of Hata, et al., such that the presently claimed invention as a whole would have been obvious to one of ordinary skill in the art.

Woodward, et al. discloses cured linear thermoplastic polyurethane resin coating compositions, and their use as moisture vapor barriers when applied as coatings on permeable materials. Note column 1, lines 31-34. This patent discloses what it describes as a new class of cured thermoplastic resin coating compositions which are useful for treating permeable materials such as paper, paperboard, plastic films and other materials used as packages, wrappers or containers for food stuffs, industrial products and the like, the coating produced by these compositions exhibiting unexpected moisture vapor barrier properties and form highly effective moisture vapor barriers when applied to permeable materials. Note column 2, lines 33-43. The coating compositions described in this patent contain cured linear thermoplastic polyurethane resins which are reaction products of about 1 mole of a non-halogenated organic diisocyanate, about 0.1 mole to about 0.9 mole of neopentyl glycol and about 0.9 mole to about 0.1 mole of an organic dihydroxy compound such as a polyether having two terminal hydroxyl groups and having an average molecular weight of from about 300 to 3,000 or a dihydric compound other than neopentyl glycol, having only carbon to carbon bonds in the backbone and having from 2-20 carbon atoms with the proviso that the NCO/OH ratio of the resin is substantially 1.00/1.00. Note column 3, lines 4-15. This patent emphasizes the water resistance and solvent resistance of the resin composition. Note column 4, lines 8-13. See also column 6, lines 10-21, disclosing various non-halogenated organic diisocyanates useful in preparing prepolymers and polyurethane resins utilized in the resin coating compositions in this patent. Note also Example XX in column 20 of this patent, pointing to solvent resistance of dried coatings of coating compositions in this patent, by placing the coated paper in contact with solvents such as water, chlorinated hydrocarbon solvent and xylene for two weeks.

Initially, it is noted that Hata, et al. is directed to a fuel tank, having good barrier properties for gasoline. In contrast, Woodward, et al. discloses polyurethane coatings acting as a barrier to moisture vapor. Hata, et al. is directed to providing an automobile fuel tank having good impact resistance as well as good impermeability to automobile fuel, while Woodward, et al. addresses the problem of providing a polyurethane coating acting as a moisture vapor barrier. In view of different technologies of Hata, et al., and Woodward, et al., and different problems addressed by each, it is respectfully submitted that one of ordinary skill in the art concerned with in Hata, et al. would not have looked to the teachings of Woodward, et al. In other words, it is respectfully submitted that these references are directed to non-analogous arts.

Furthermore, the problem addressed by the present invention, of providing a fuel system having sufficient gasoline barrier properties, is also noted. It is respectfully submitted that one of ordinary skill in the art involved in connection with the present invention would not have looked to the teachings of Woodward, et al., directed to moisture vapor barriers, for solving problems involved in connection with the present invention.

It is respectfully submitted that only through hindsight use of Applicants' disclosure would one of ordinary skill in the art have looked to the teachings of Woodward, et al., in connection with the fuel system of the present invention or in connection with the fuel tank of Hata, et al. Of course, such hindsight use of Applicants' disclosure is improper under the guidelines of 35 USC 103.

In any event, even assuming, arguendo, that the teachings of Hata, et al. and of Woodward, et al. were properly combinable, such combined teachings would have neither disclosed nor would have suggested the coating layer of the present claims, and advantages thereof.

In particular, among other features of the present invention, it is respectfully submitted that the combined teachings of the applied references, including Woodward, et al., would have neither taught nor would have suggested the polyol as in the present claims. In connection therewith, the Examiner contends that Woodward, et al. discloses the use of "any polyol"; such contention by the Examiner is respectfully traversed. It is respectfully submitted that Woodward, et al. specifically discloses, and requires neopentyl glycol; in this regard, attention is respectfully directed to column 7, lines 56-58 of Woodward, et al., disclosing that neopentyl glycol "is a required ingredient in the polyurethane resins disclosed in this invention". Contrary to the contention by the Examiner, it is respectfully submitted that Woodward, et al., either alone or in combination with the teachings of the other applied references, would have neither disclosed nor would have suggested the fuel system including the coating layer as in the present claims, including, inter alia, wherein the active hydrogen-containing compound (A) comprises alkyleneoxide adducts of xylylenediamine produced by reacting alkyleneoxide and xylylenediamine with the specified molar ratio as in the present claims.

Miyazaki, et al. discloses a polyurethane foam molding, useful for automotive materials for steering wheels, headrests and armrests, material for furniture, and the like. The polyurethane foam moldings are provided by reacting a polyisocyanate with a polyol in the presence of water as the primary blowing agent, the polyisocyanate being further defined. Note column 1, lines 54-67 of this patent. This patent is primarily concerned with providing polyurethane foams that can be prepared employing water as a sole blowing agent, without using chlorofluorocarbon ("CFC") as a blowing agent. Note column 1, lines 35-44. As applied by the Examiner, note the polyols described in the paragraph bridging columns 2 and 3 of this patent, for preparing the polyurethane foam moldings by reacting a polyisocyanate with a polyol in the presence of water as the primary blowing agent.

Initially, note that Miyazaki, et al. is directed to polyurethane foam moldings, useful for steering wheels, headrests and armrests, as an automotive material. It is respectfully submitted that one of ordinary skill in the art concerned with in Hata, et al., i.e., fuel tanks, would not have looked to the teachings of Miyazaki, et al. In particular, in view of differences in technology in connection with Hata, et al. (fuel tanks) and in connection with Miyazaki, et al. (polyurethane foam molding materials), and in view of differences in problems addressed by each (Hata, et al. being directed to a fuel tank of multi-layer construction having good impact resistance as well as good barrier properties for gasoline, while Miyazaki, et al. is directed to providing polyurethane foam moldings using water as a sole blowing agent), it is respectfully submitted that one of ordinary skill in the art concerned with in Hata, et al. would not have looked to the teachings of Miyazaki, et al. In other words, these references are directed to non-analogous arts.

Noting that the present invention addresses a problem of providing fuel vessels having heat and impact resistance, as well as a gasoline barrier property, it is respectfully submitted that one of ordinary skill in the art concerned with in connection with the present invention would not have looked to the polyurethane foam molding materials of Miyazaki, et al. for solving the problems addressed by the present invention. For this reason also, it is respectfully submitted that Miyazaki, et al. constitutes non-analogous art.

Again emphasizing that Hata, et al. is directed to fuel tanks, while Miyazaki, et al. is directed to polyurethane foam moldings, it is respectfully submitted that there would have been no reason for looking to the teachings of Miyazaki, et al., with respect to the fuel tank of Hata, et al. or the presently claimed fuel system, absent the teachings of the present application. However, use of teachings of the present application for providing a reason for combining reference teachings constitutes improper hindsight use of Applicants' disclosure.

In any event, even assuming, arguendo, that the teachings of Miyazaki, et al. were properly combinable with the teachings of the other applied references in the Office Action mailed April 28, 2011, such combined teachings would have neither disclosed nor would have suggested the presently claimed fuel system, including the skeletal structure represented by Formula (1), contained in the coating layer, particularly wherein such skeletal structure accounts for 20% by weight or more, or wherein the coating layer has a gasoline permeability coefficient as in the present claims, or wherein the coating layer is on surfaces of the insides of the recited parts of the fuel system, or the active hydrogen-containing compound (A) used in forming the coating layer, and advantages thereof; and/or other features of the present invention as discussed previously, and advantages thereof.

While Miyazaki, et al. may disclose, among the many materials disclosed therein for the polyurethane foam moldings, alkyleneoxide adducts of xylylenediamine, this reference, either alone or in combination with the teachings of the other applied references, would have neither disclosed nor would have suggested fuel barrier properties of the presently claimed structure, including the recited coating layer, among other features, again emphasizing that Miyazaki, et al. discloses a polyurethane foam.

Dietrich, et al. discloses polyether polyols having OH numbers of about 30 to 630, described most generally in the paragraph bridging columns 2 and 3 of this patent. The polyether polyols are described as having excellent foaming properties; see column 2, lines 35-51. Note also column 3, lines 6-31, 52-60 and 57-64.

It is respectfully submitted that one of ordinary skill in the art concerned with in, e.g., Hata, et al., would not have looked to the teachings of Dietrich, et al., directed to polyether polyols avoiding cracking of rigid foam boards formed therefrom.

In any event, even assuming, arguendo, that the teachings of the applied references, including Dietrich, et al. were properly combinable, such combined teachings would have neither taught nor would have suggested the presently claimed invention, including, inter alia, the skeletal structure represented by Formula (1), contained in the coating layer, particularly wherein such skeletal structure accounts for 20% by weight or more, or wherein the coating layer has a gasoline permeability coefficient as in the present claims, or the active hydrogen-containing compound (A) used in forming the coating layer, or the organic polyisocyanate compound (B), or wherein the coating layer is provided on surfaces of the insides of the recited components of the fuel system, and advantages thereof; and/or other features of the present invention as discussed previously, and advantages thereof.

In connection with claims 5 and 6, and noting the rejection set forth in Item 4 on page 5 of the Office Action mailed April 28, 2011, Ramanathan, et al. discloses a fuel tank including two or more sections bonded together by means of an adhesive which has a fuel barrier property and which bonds to low energy surface materials, as described in paragraph [0016] on page 1 of this patent document. Note also paragraph [0001] on page 1. Note, further, paragraph [0031] on page 2, disclosing polymers having fuel barrier properties which can be employed in the fuel tank described in this patent document. Note also paragraph [0036] on page 3, disclosing preferred adhesives.

Even assuming, arguendo, that the teachings of Ramanathan, et al. were properly combinable with the teachings of Hata, et al., Woodward, et al., Miyazaki, et al., and Dietrich, et al., as applied by the Examiner, such combined teachings would have neither disclosed nor would have suggested the presently claimed fuel system, including, inter alia, the coating layer as in the present claims, having the specified skeletal structure and in the specified amount, or formed using the specific active hydrogen-containing compound (A) and organic polyisocyanate compound (B) as in claim 1, or the gasoline permeability coefficient, or wherein such coating layer is provided on the inner surfaces of the recited parts, and advantages thereof.

In addition, it is emphasized that while Ramanathan, et al. discloses various polymers having fuel barrier properties, for example, in paragraph [0031] on page 2, this patent document does not disclose polyurethane resin as a fuel barrier polymer. Even utilizing the teachings of Ramanathan, et al. together with the teachings of the other references as applied by the Examiner, such combined teachings would have neither disclosed nor would have suggested the presently claimed invention, including the coating layer of the fuel system, positioned as in the present claims, having a skeletal structure represented by Formula (1), and wherein this skeletal structure accounts for 20% by weight or more, or the gasoline permeability coefficient of the coating layer, or wherein the coating layer is formed from the compounds (A) and (B) in claim 1.

The contention by the Examiner in the second paragraph of Item 3, bridging pages 3 and 4 of the Office Action mailed April 28, 2011, that Hata, et al. discloses a layer of any resin formed on the surface of the inside, the Examiner referring to column 5, lines 14-18, of this patent, is respectfully traversed. Column 5, lines 14-18, of this patent, discloses high-density polyethylene layers as the innermost and outermost layers, an EVOH layer between the polyethylene layers, and wherein the adhesive resin for the intermediate layer can be selected from, among other materials, polyurethane resins. Such disclosure would have taught away from the fuel system of the present claims, having the coating layer on the surfaces of the insides of at least one of the recited parts of the fuel system.

Entry of the foregoing comments, full consideration of the Declaration under 37 CFR 1.132 submitted February 28, 2008, and of the Declaration under 37 CFR 1.132 submitted June 8, 2009, and reconsideration and allowance of all claims presently pending in the above identified application, are respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to the Deposit Account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (No. 396.43174X00) and please credit any excess fees to such Deposit Account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

By **/William I. Solomon/**
William I. Solomon
Registration No. 28,565

WIS/ksh
1300 17th Street N., Suite 1800
Arlington, Virginia 22209
Tel: 703-312-6600
Fax: 703-312-6666